

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE DRAWINGS

Figs. 6-14 have been amended to remove reference numerals 60, 62 and 70.

Submitted herewith are corrected sheets of formal drawings which incorporate the amendments and annotated sheets showing the changes made thereto.

No new matter has been added, and it is respectfully requested that the Examiner's objection to the drawings be withdrawn.

THE SPECIFICATION

The specification has been amended to remove all mention of reference numerals 60, 62 and 70 so as to accord with the amended drawings. In addition, the specification has also been amended to make a few minor grammatical improvements.

No new matter has been added, and it is respectfully requested that the amendments to the specification be approved and entered.

THE CLAIMS

Claim 1 has been amended to incorporate the subject matter of (now canceled) claim 2.

In addition, claims 1, 3, 5, 7, 9, 11 and 13 have been amended to make some clarifying amendments, including some minor grammatical improvements, and to correct some minor antecedent basis problems, so as to put the claims in better U.S. form. The informalities pointed out by the Examiner have been corrected.

In particular, claim 1 has been amended to avoid the term "up-thrust type" and to clarify the feature of the present invention whereby the toggle plate is angled upward toward the swing jaw. In addition, claim 1 has been amended to clarify the feature of the present invention whereby the toggle plate holder mechanism holds the toggle plate between the swing jaw and the toggle plate support member, as shown in Fig. 6. And claim 1 has also been amended to clarify the feature of the present invention whereby the toggle plate holder mechanism comprises a link member rotatably coupled to the swing jaw.

New independent claim 16, moreover, has been added based on the subject matter of claim 1 and to recite the features of the present invention whereby the toggle plate holder mechanism comprises a link member which is rotatably coupled to the swing jaw at a first end thereof and which is rotatably coupled to a support member at a second end thereof, such that the link member

approximates a movement of the toggle plate during operation of the jaw crusher, as supported by the disclosure in the specification at, for example, page 12, lines 4-12.

Still further, new independent claim 17 has been added based on the subject matter of claims 1 and 3 and to recite the features of the present invention whereby the toggle plate support member is rotatable about a pin, and whereby the tension lever includes a shaft portion rotatably mounted on the at least one pin and at least one lever portion connected to the second end of the tension link as supported by the disclosure in the specification at, for example, page 8, lines 14-16 and page 12, lines 13-18.

And finally, new claim 18 has been added depending from claim 17 to recite the feature of the present invention whereby the at least one toggle plate support member comprises two toggle plate support members which are rotatably supported about respective pins and which are linked by a link portion extending therebetween, and whereby the tension spring is coupled to a mount portion of the link portion, as supported by the disclosure in the specification at, for example, page 10, lines 19-26.

No new matter has been added, and it is respectfully requested that the amendments to claims 1, 3, 5, 7, 9, 11 and 13 and the addition of claims 16-18 be approved and entered, and that the rejection under 35 USC 112 be withdrawn.

THE PRIOR ART REJECTION

Claim 1 was rejected under 35 USC 102 as being anticipated by USP 3,918,648 ("Anthony"); claims 1-4 were rejected under 35 USC 102 as being anticipated by USP 1,620,078 ("Cookinham"); claims 7, 8, 11 and 12 were rejected under 35 USC 103 as being obvious in view of the combination of Cookinham with USP 2,259,833 ("Sandy"); and claim 15 rejected under 35 USC 103 as being obvious in view of the combination of Cookinham with US 2002/0036246 ("Togashi et al"). These rejections, however, are all respectfully traversed with respect to the amended and new claims set forth hereinabove.

Re: Claim 1

According to the present invention as recited in amended independent claim 1, a jaw crusher is provided which comprises: a fixed jaw; a swing jaw which swings relative to the fixed jaw; a reaction force receiver mechanism, and a toggle plate holder mechanism. The reaction force receiver mechanism comprises: (i) a toggle plate that is angled upward toward the swing jaw and includes a first end that contacts the swing jaw, and (ii) a toggle plate support member that contacts a second end of the toggle plate. The toggle plate holder mechanism holds the toggle plate between the swing jaw and the toggle plate support member, and comprises: (i) a link member rotatably coupled to the swing

jaw, and (ii) a biasing portion, which biases the swing jaw and the toggle plate support member to the toggle plate, and which is coupled to the toggle plate support member. And the reaction force receiver mechanism comprises an outlet clearance adjustment mechanism which moves the swing jaw with respect to the fixed jaw to adjust an outlet clearance between the jaws by adjusting a position of the toggle plate support member and the toggle plate.

The Examiner contends that Anthony discloses a toggle plate holder mechanism made up of bearing members at each end of the toggle plate, including the one bearing member shown in Fig. 2.

It is respectfully submitted, however, that the bearing members of Anthony clearly do not correspond to a toggle plate holding mechanism including a link member that is rotatably coupled to the swing jaw, as recited in amended independent claim 1.

On page 5 of the Office Action, the Examiner asserts that Cookinham discloses a reaction force receiver mechanism that has an outlet clearance adjustment mechanism.

It is respectfully submitted, however, that lever arm 22 of Cookinham merely swings the lower end of the jaw carrier 10 to drive the crushing plates 2 and 4 together. And it is respectfully submitted that Cookinham does not disclose, teach or suggest that the lever arm 22 adjusts an outlet clearance between the jaws by adjusting a position of the toggle plate support

member and the toggle plate. See the outlet clearance W in Fig. 6, which is a distance between the lower ends of the jaws that is adjusted to set the grain size of the crushed material. That is, the outlet clearance does not open and close to crush material, but rather is an adjustable distance that determines the size of the crushed material that is allowed to escape the jaws. And it is respectfully submitted that since the lower end of the jaw carrier in Cookinham is swung by the arm 22 to crush material, the arm 22 merely opens and closes the lower ends of the jaws and does not adjust an outlet clearance between the jaws in the manner of the claimed present invention.

In view of the foregoing, it is respectfully submitted that amended independent claim 1 clearly patentably distinguishes over Anthony and Cookinham, under 35 USC 102 as well as under 35 USC 103.

Re: Claim 3

The Examiner contends that Cookinham discloses the features of the toggle plate holder mechanism recited in claim 3. Specifically, the Examiner asserts that the spring near element 9 and the rod near element 36 in Fig. 1 of Cookinham correspond to the tension spring and tension rod recited in claim 3. And the Examiner asserts that Cookinham discloses a tension lever near the spring in Fig. 1 of Cookinham.

According to the present invention as recited in claim 3, however, the tension lever supports the second end of the tension link, and the tension rod is attached to the tension lever.

By contrast, as shown in Fig. 1 of Cookinham, a first rod is connected to the jaw carrier 10, a second rod is hooked onto the first rod (near arm 22), and a spring is provided at an end of the second rod. According to the Examiner, the first rod of Cookinham corresponds to the tension link of the claimed present invention. However, if the first rod of Cookinham were considered to correspond to the tension link recited in claim 3 in this manner, then the second rod of Cookinham would necessarily correspond to the tension lever recited in claim 3, since the tension lever supports the second end of the tension link according to claim 3. With this interpretation of Cookinham, there would be no tension rod as recited in claim 3.

If, on the other hand, the second rod of Cookinham were considered to correspond to the tension rod recited in claim 3, then Cookinham clearly would not have a tension lever supporting the second end of the tension link (first rod).

In addition, contrary to the Examiner's assertion on page 5 of the Office Action, the first rod in Fig. 1 of Cookinham is clearly biased by the spring such that it does not swing about the hook connection between the first and second rods. Thus, it is respectfully submitted that Cookinham clearly does not

disclose swing centers at two sides of the tension link that are positioned near swing centers at two sides of the toggle plate.

Therefore, it is respectfully submitted that Cookinham clearly does not disclose, teach or suggest the features of the present invention recited in amended claim 3.

Re: Claim 7

According to clarified amended claim 7 the tension link has a concave shape in profile, and notches are formed in the toggle plate at respective positions corresponding to the swing centers at the two sides of the tension link.

It is respectfully submitted that the Examiner has not identified a tension link with a concave shape in profile in any of the cited references.

In addition, it is respectfully submitted that the toggle members 22 and 23 of Sandy each appear to include a notch only at one end thereof. That is, Sandy includes two individual toggle members, each including one notch.

By contrast, clarified amended claim 7 recites that notches are formed in the toggle plate at respective positions corresponding to the swing centers at the two sides of the tension link. That is, according to claim 7 the one (or each) toggle plate includes a plurality of notches.

In addition, according to Sandy, the tension rod members 41 and 42 do not have two swing centers. And according to Sandy the notch in each toggle member 22 and 23 corresponds to only one side of the corresponding tension rod member 41 or 42.

By contrast, clarified amended claim 7 recites that notches are formed in the toggle plate at respective positions corresponding to the swing centers at the two sides of the tension link.

Thus, it is respectfully submitted that Sandy clearly does not disclose, teach or suggest the features of the present invention recited in amended claim 7.

Re: Claim 11

According to clarified amended claim 11, the toggle plate is divided into a plurality of pieces such that at least one of the pieces is provided on each side of the tension link.

By contrast, the toggle members 22 and 23 of Sandy are not divided at the positions of the tension rod members 41 and 42. The tension rod members 41 and 42 of Sandy are in fact provided at central locations of the toggle members 22 and 23, as shown in Fig. 2 thereof.

Thus, it is respectfully submitted that Sandy clearly does not disclose, teach or suggest the features of the present invention recited in amended claim 11.

Re: New Claims 16-18

According to new independent claim 16, the toggle plate holder mechanism comprises a link member which is rotatably coupled to the swing jaw at a first end thereof and which is rotatably coupled to a support member at a second end thereof, such that the link member approximates a movement of the toggle plate during operation of the jaw crusher.

According to new independent claim 17, the toggle plate support member is rotatable about a pin, and the tension lever includes a shaft portion rotatably mounted on the at least one pin and at least one lever portion connected to the second end of the tension link. And according to new claim 18 depending from claim 17, the at least one toggle plate support member comprises two toggle plate support members which are rotatably supported about respective pins and which are linked by a link portion extending therebetween, and the tension spring is coupled to a mount portion of the link portion.

It is respectfully submitted the features of the present invention recited in new claims 16-18 are clearly not disclosed, taught or suggested in any of the cited references.

* * * * *

In view of the foregoing, it is respectfully submitted that the claimed present invention as recited in each of independent


claims 1, 16 and 17, as well as each of claims 3, 7, 11, and 18 respectively depending therefrom, clearly patentably distinguishes over Anthony, Cookinham, Sandy and Togashi et al, taken singly or in any combination consistent with the respective fair teachings thereof, under 35 USC 102 as well as under 35 USC 103.

Upon allowance of elected independent claim 1, moreover, it is respectfully requested that withdrawn claims 5, 9 and 13 also be considered on the merits and allowed.

Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,



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Amendments to the Drawings:

Figs. 6-14 have been amended to remove the reference numerals 60, 62 and 70 and the lead lines thereof.

Attachments: Nine (9) Annotated Sheets Showing Changes
 Nine (9) Replacement Sheets

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FIG. 6

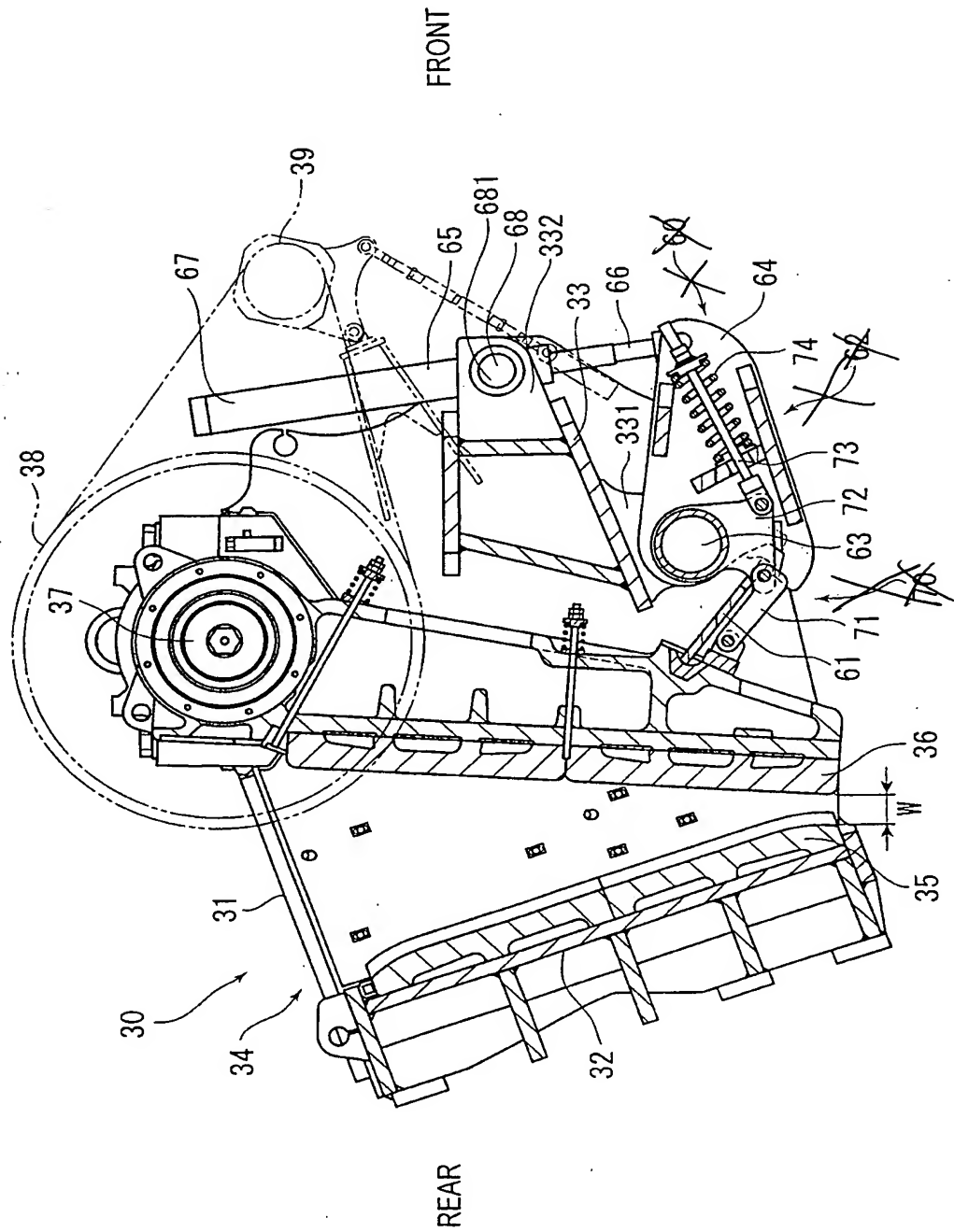
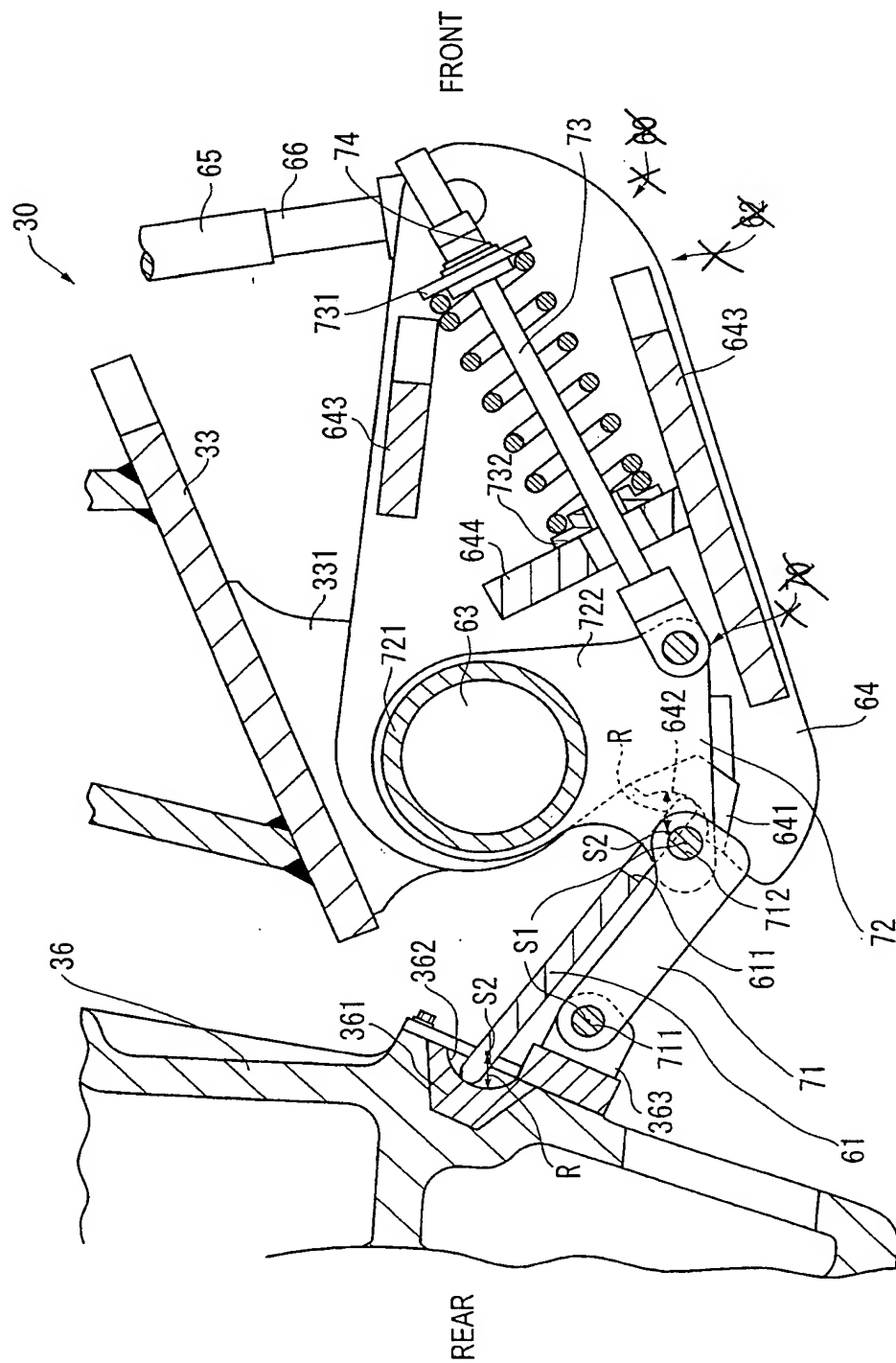
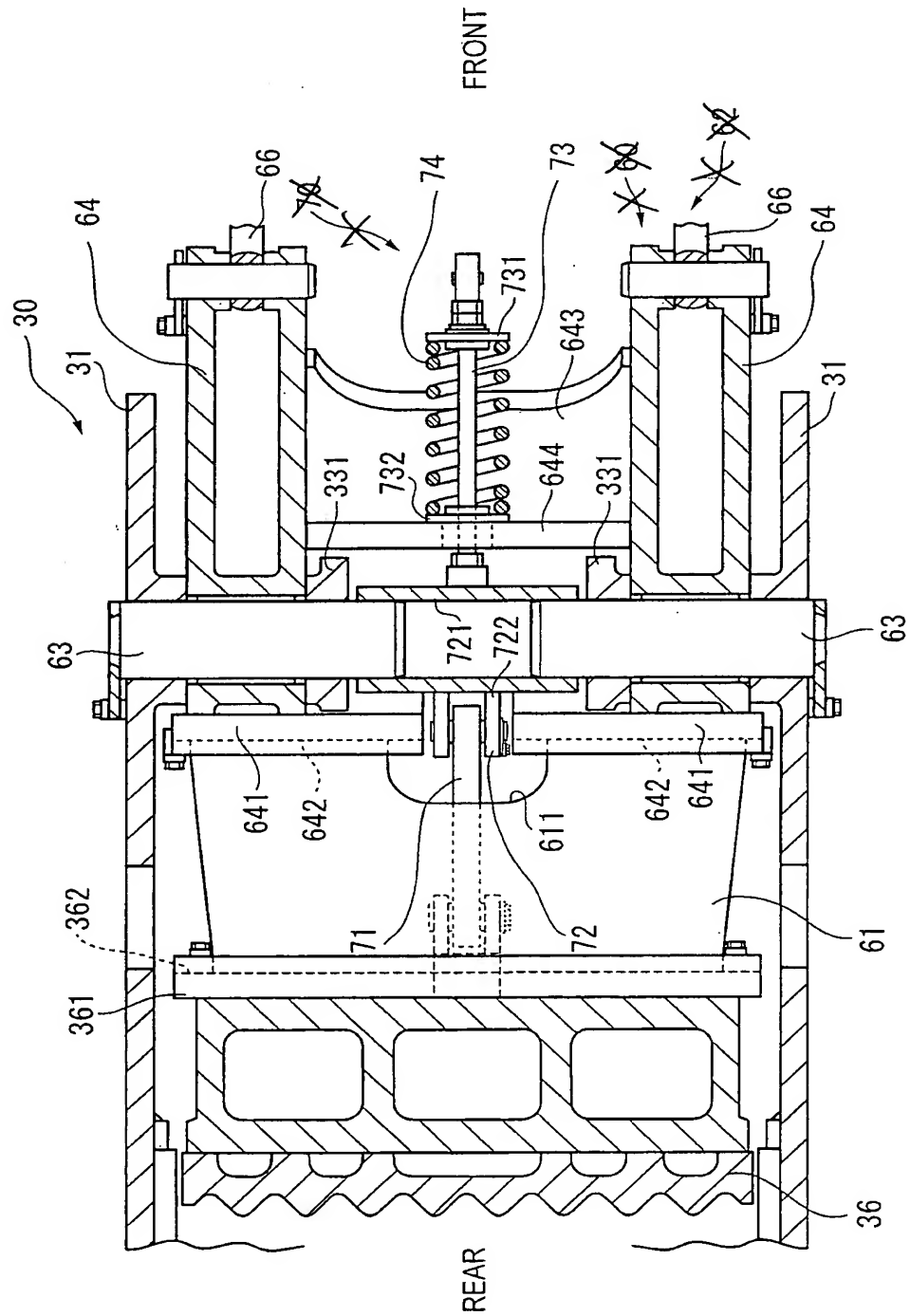


FIG. 7



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FIG. 8



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FIG. 9

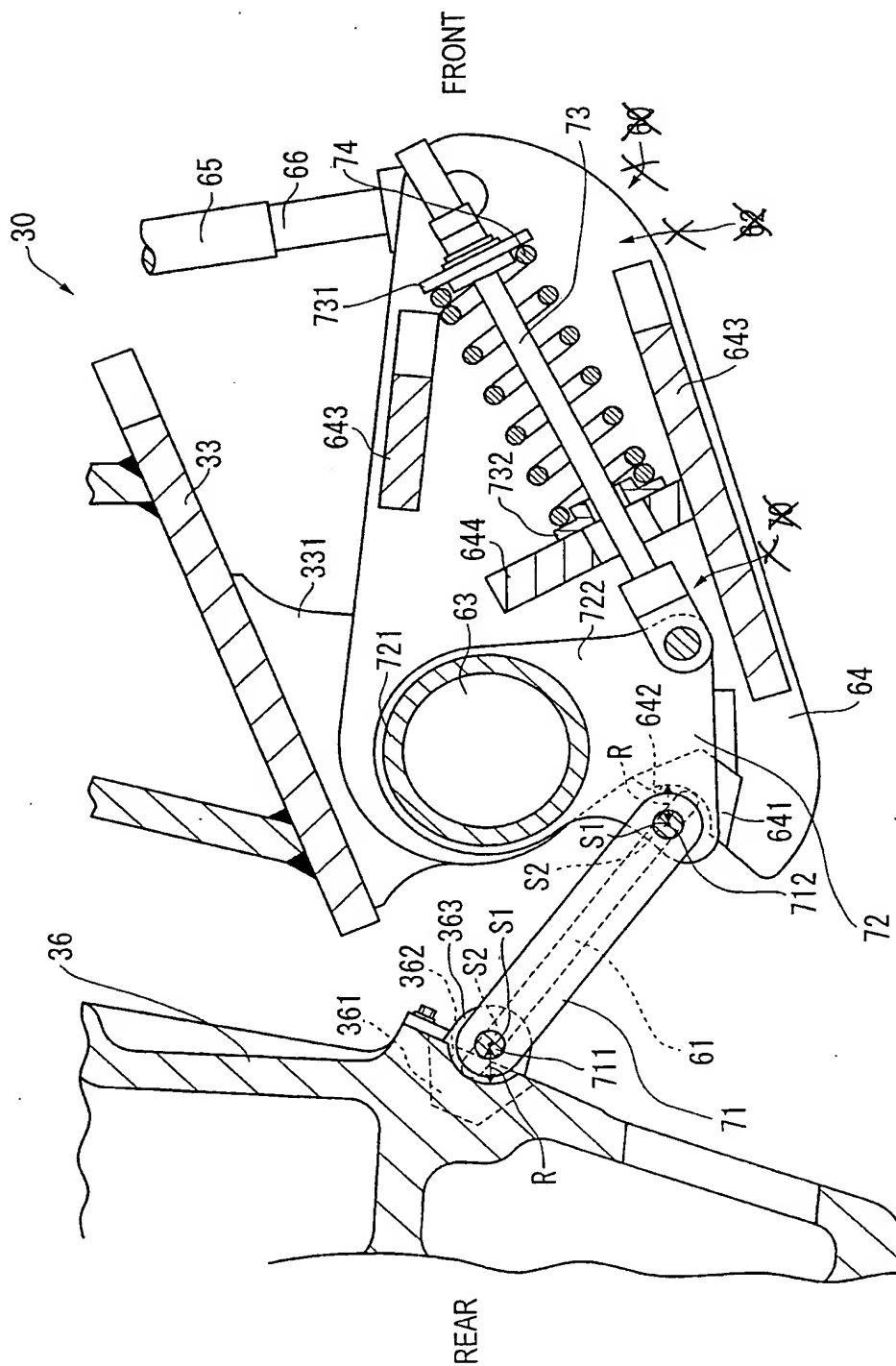
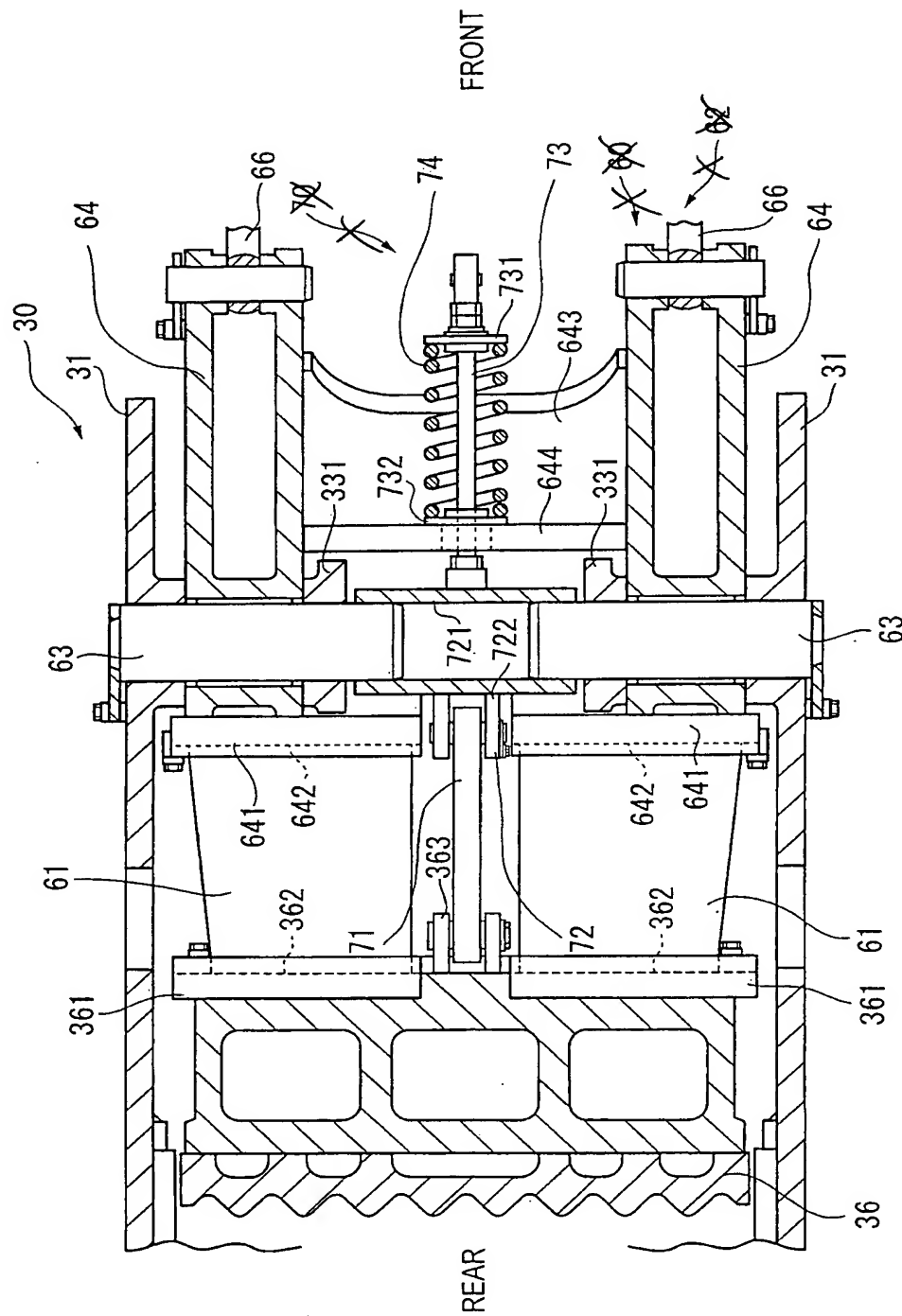


FIG. 10



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FIG. 11

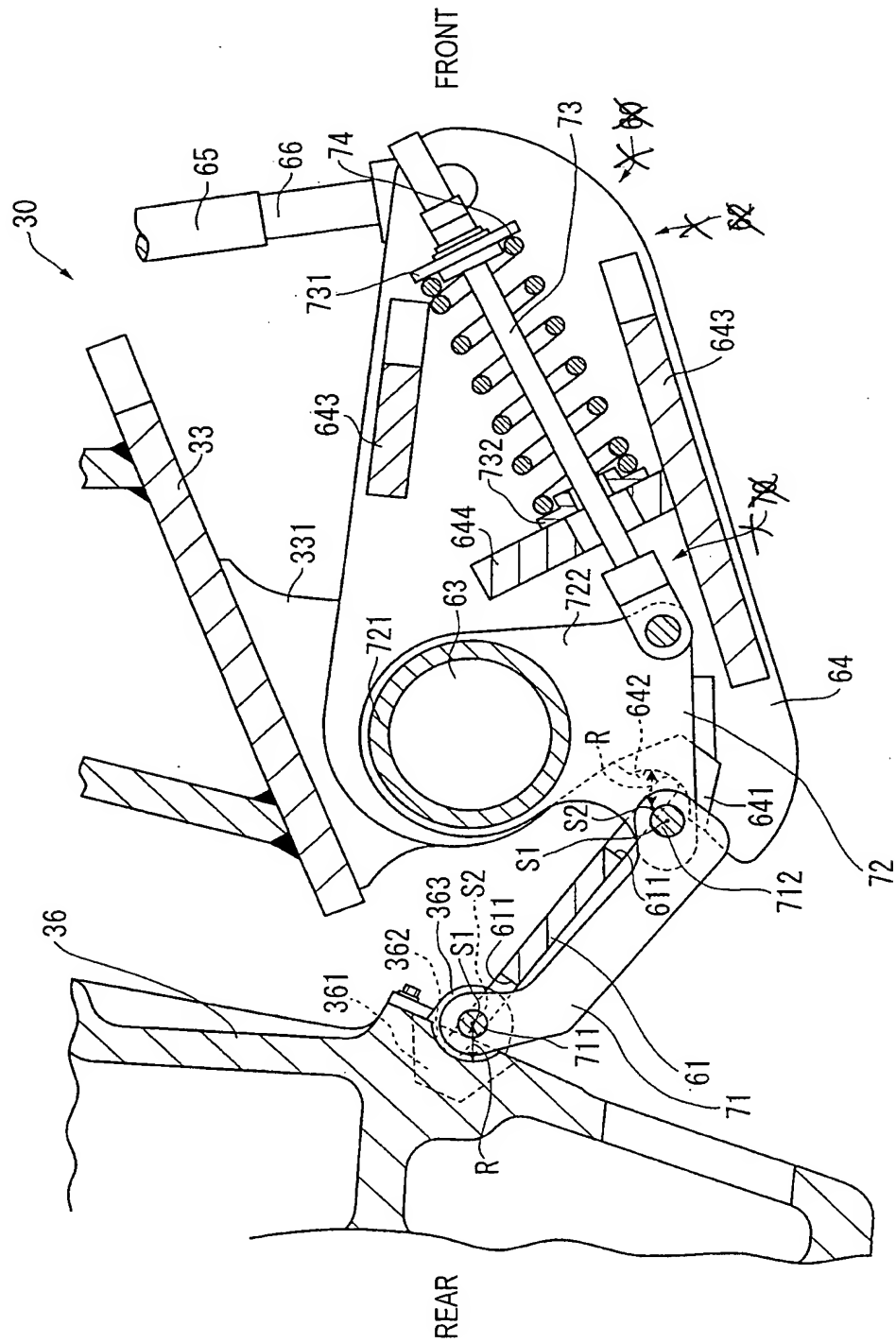
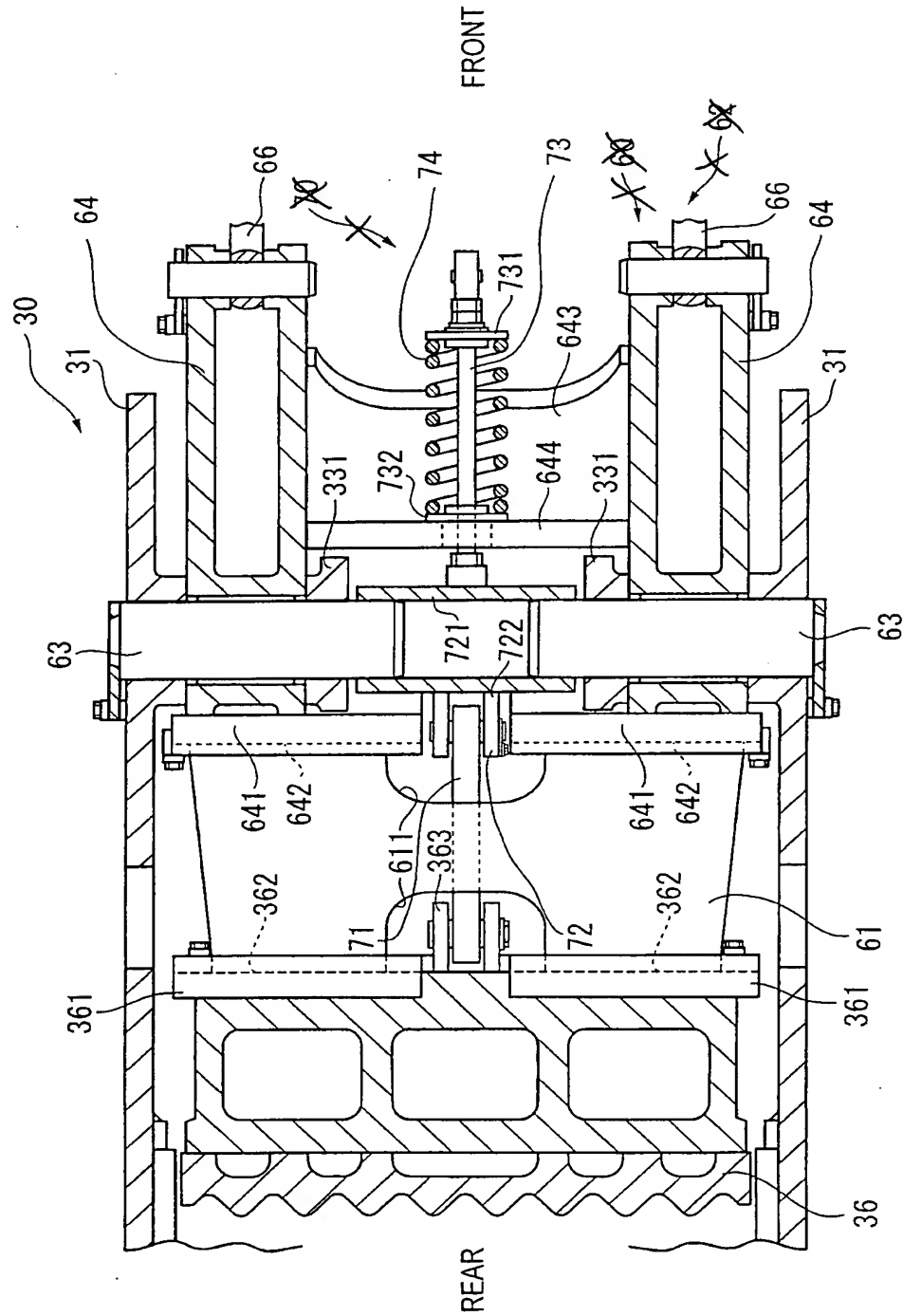


FIG. 12



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FIG. 13

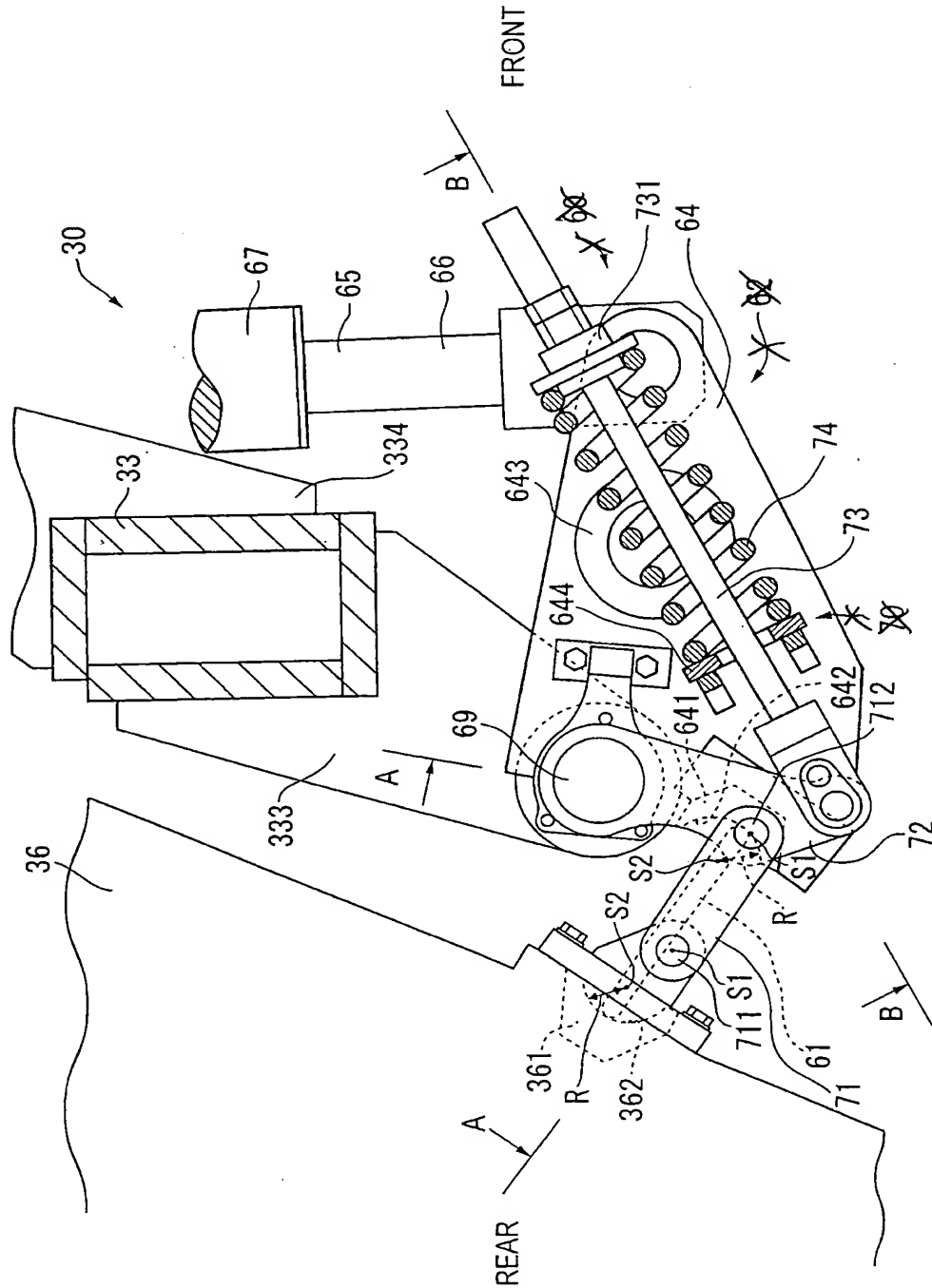


FIG. 14

